Appendix I

RARE PLANT SURVEY FOR SPECIAL STATUS PLANTS

FALLBROOK OAKS TM 5449

COUNTY OF SAN DIEGO, CALIFORNIA

Prepared for:

Keystone Communities

5333 Mission Center Road, Suite 360

San Diego, California 92108

Contact: Mark Rael

(619) 299-4855

Prepared By and Principal Investigator:

Gonzales Environmental Consulting LLC

51-842 Avenida Diaz

La Quinta, CA 92253

(760) 777-1621 ~ (310) 548-7087

teresa.gonzales@earthlink.net

Surveys Conducted By: Teresa Gonzales

Surveys conducted: May 28, 2007

Report date: August 1, 2007

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I. PROJECT DESCRIPTION

This report contains the results of surveys for special status plant species conducted on the . Habitat assessment and focused surveys were conducted on the Fallbrook project site (the "Site") located in San Diego County, California.

STUDY AREA

The proposed 27.15-acre Fallbrook Oaks project site is located northeast of the intersection of Reche Road and Ranger Road in the community of Fallbrook, in an unincorporated part of the County of San Diego, California (see *Figure 1)*. The property is mapped on the U.S. Geological Survey (USGS) 7.5 minute Bonsall quadrangle in Section 22, Township 9 South, Range 3 West (see *Figure 2*)

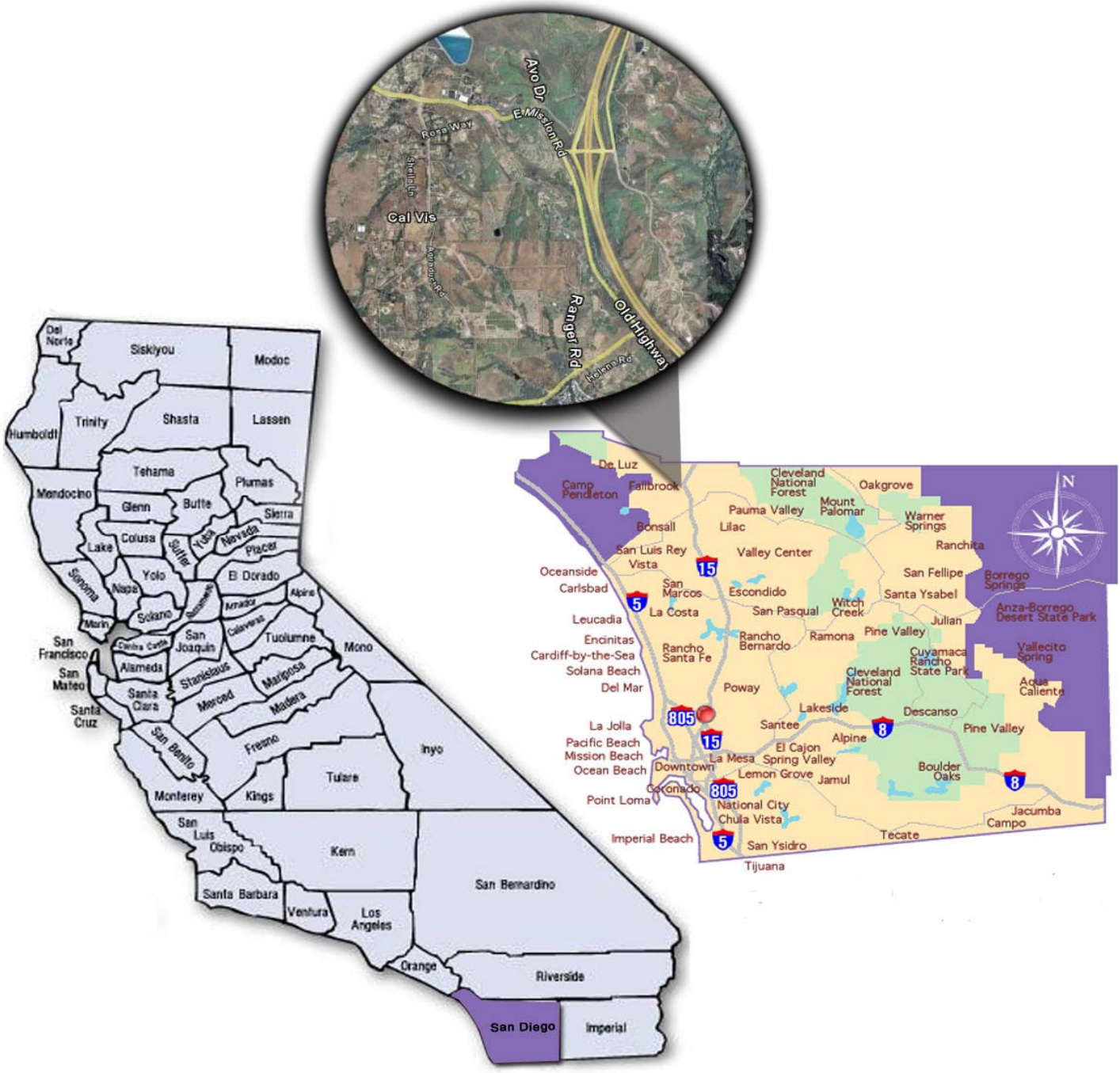


Figure 1
Vicinity Map

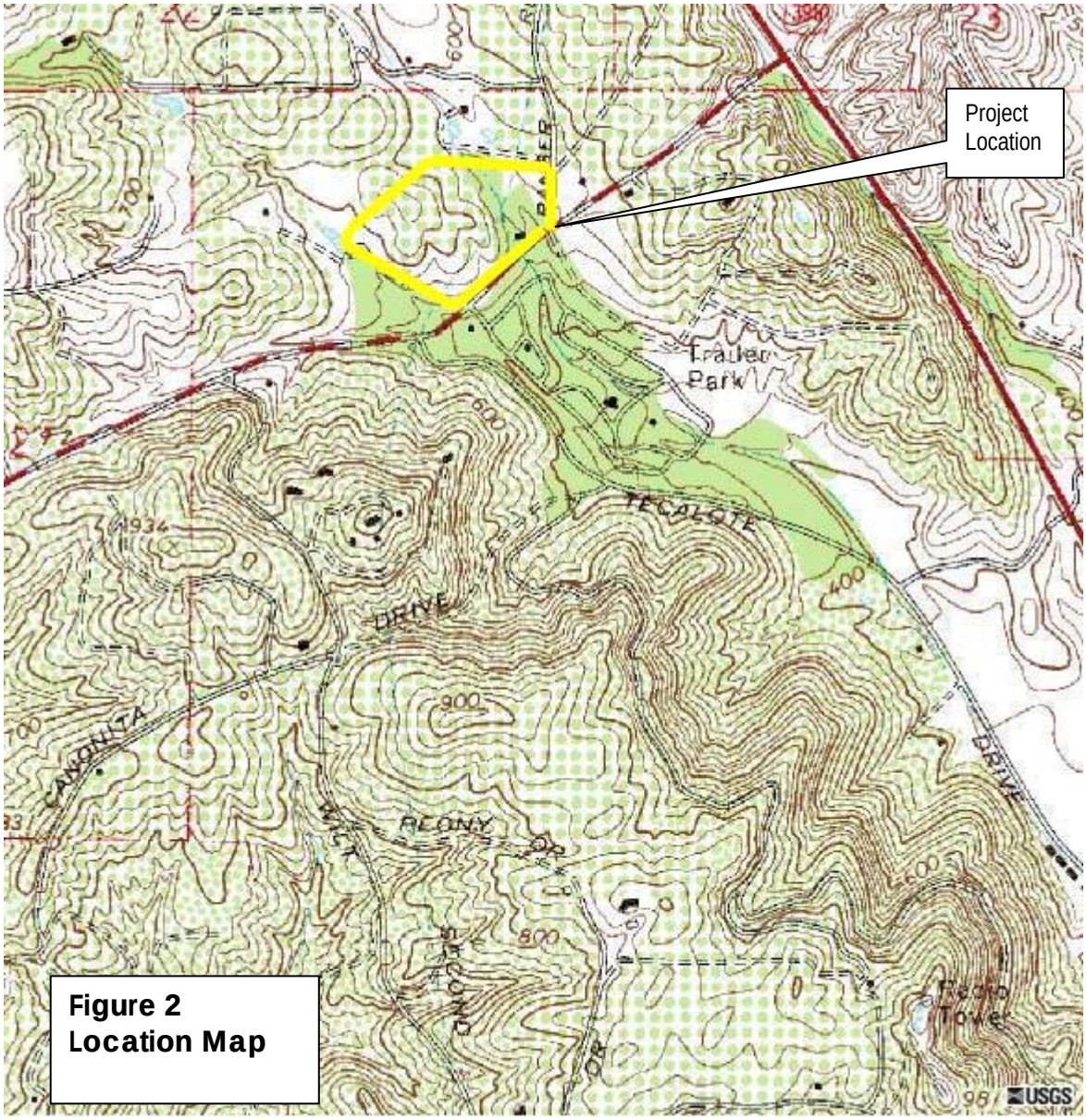


Figure 2
Location Map

Please note that this is an approximate locality map, and should not be used for calculations

The project site rises from approximately 520 feet above mean sea level (AMSL) in the southeast to 640 feet AMSL in the northwest. A blue line stream was mapped traversing the site in a roughly north to south direction (USGS 1975).

The land use for the project site was formerly agriculture. The site was planted with tree crops (avocado, citrus, and walnut) in the western half and contained a house and yard off Reche Road. Both appear to have been abandoned in the previous decade, and fruit trees are dead or dying and old-field succession is occurring. Functioning citrus and avocado groves are to the north and west of the property, a park-like wooded area and single-family residences are to the south, and an unplowed field, residence, and plant nursery are to the east. Irrigation water from the groves to the north drain onto the site. Teresa Gonzales was the biologist for this project. Field surveys were conducted on May 28, 2007.

VEGETATION

Six plant communities (vegetation types) were identified onsite: disturbed coast live oak woodland, non-native grassland, non-native vegetation, disturbed habitat (developed), southern coast live oak riparian forest, and valley needlegrass grassland. These vegetation types are described below, their acreages are presented in *Table 2*, and their locations are shown in *Figure 3*. *Figure 3* also shows vegetation communities and land cover types within a 100-foot wide mapping buffer around the project site, as required by the County DPLU (County 2002).

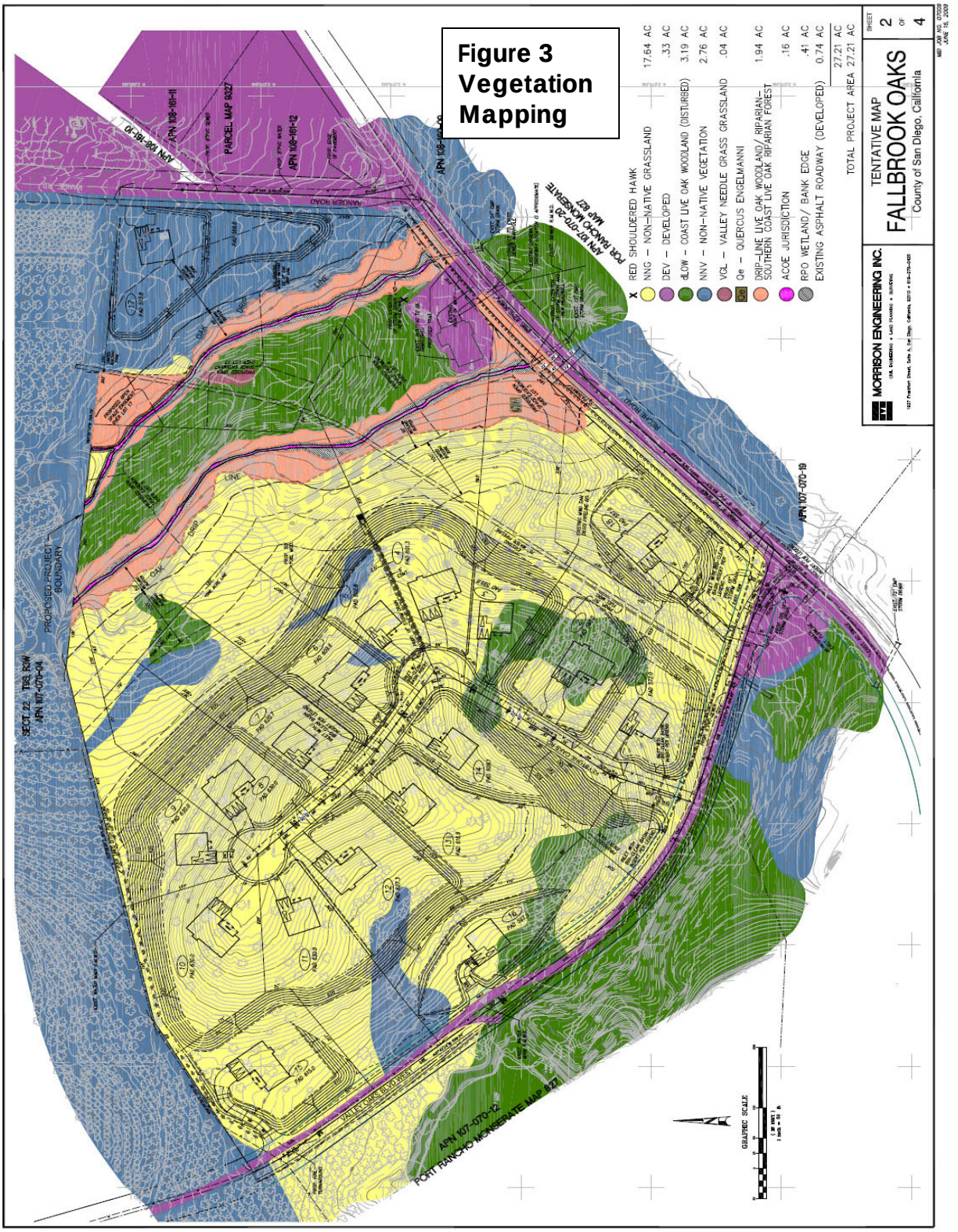


Figure 3
Vegetation
Mapping
TENTATIVE MAP
FALLBROOK OAKS
County of San Diego, California
MORRISON ENGINEERING INC.
RED SHOULDERED HAWK
NNG – NON–NATIVE GRASSLAND 17.64 AC
DEV – DEVELOPED .33 AC
dLOW – COAST LIVE OAK WOODLAND (DISTURBED) 3.19 AC
NNV – NON–NATIVE VEGETATION 2.76 AC
VGL – VALLEY NEEDLE GRASS GRASSLAND .04 AC
Qe – QUERCUS ENGELMANNI
DRIP–LINE LIVE OAK WOODLAND/ RIPARIAN– SOUTHERN COAST LIVE OAK RIPARIAN FOREST 1.94 AC
ACOE JURISDICTION .16 AC
RPO WETLAND/ BANK EDGE .41 AC
EXISTING ASPHALT ROADWAY (DEVELOPED) 0.74 AC
TOTAL PROJECT AREA 27.21 AC 27.21 AC
PROPOSED PROJECT BOUNDARY
SECT 22 TSR RSW
APN 107-070-04
APN 107-070-19
APN 107-070-12
PORT RANCHO MONSERATE MAP 627
PARCEL MAP 8327
APN 108-161-11
APN 108-161-12
APN 108-161-10
APN 108-161-09
APN 107-070-20
PCR RANCHO MONSERATE MAP 627
MANCHER ROAD
OAK GROVE DRIVE
VALLEY OAKS BLUFFS
GRAPHIC SCALE
SHEET 2 OF 4

Coast Live Oak Woodland / Disturbed Coast Live Oak Woodland (Holland Code 71160)

Coast live oak woodland (oak woodland) is dominated by coast live oak (*Quercus agrifolia*), which may occur in pure stands, open savannas, or in stands mixed with conifers and broadleaf trees. The shrub layer is poorly developed but may include large shrubs such as toyon (*Heteromeles arbutifolia*), laurel sumac (*Malosma laurina*) and blue elderberry (*Sambucus mexicana*). Non-native grasses such as ripgut brome (*Bromus diandrus*) dominate the herb layer. Western poison oak (Toxicodendron diversilobum) is also a characteristic species in oak woodland. This community typically is found on north-facing slopes and shaded ravines in southern California and on more exposed sites in the north (Holland 1986).

Two areas onsite are mapped as oak woodland, to either side of the larger southern coast live oak riparian forest through the center of the site. The western patch of is dominated by coast live oak trees greater than 20 feet tall that form a near-continuous canopy cover. The eastern patch contains three mature coast live oak trees with an understory of non-native grasses and herbs, about 30 percent cover of western poison oak, and scattered oak seedlings on the periphery.

Coast live oak woodland was distinguished from adjacent southern coast live oak riparian forest by the greater distance of the vegetation from the stream channels (at least 5 feet from the western patch and 6 feet from the eastern patch), and an understory dominated by non-native grasses and forbs lacking dense vines, shrubs, and other mesic understory species typically associated with riparian vegetation. Coast live oak woodland has appropriate structure to provide high-quality habitat for a variety of wildlife species.

Disturbed coast live oak woodland is mapped in the abandoned grove in the center and western parts of the site. Onsite disturbed coast live oak woodland is defined as: a minimum area of 0.1 acre where coast live oak is the dominant tree species, with other agricultural trees, particularly avocado, occasionally present; woody native cover (coast live oak and toyon) is greater than 20% (typically about 25%); with coast live oak trees are greater than ten feet tall (typically 10 – 15 feet tall, but including individual trees up to 25 feet tall). These two areas are near intact coast live oak woodland to the west of the site and apparently have been colonized more readily than other parts of the abandoned grove. The habitat value of disturbed coast live oak woodland for plant and animal diversity is marginal, but higher than surrounding non-native grassland.

Non-native Grassland (Holland Code 42200)

Non-native grassland is characterized by a sparse to dense cover of annual grasses

typically up to two feet tall, with many annual wildflowers also present in years with favorable rainfall. This vegetation community typically occurs on fine-textured soils that are moist or wet in the winter and very dry during summer and fall. Plant species present typically include wild oat (*Avena spp.*), bromes (*Bromus* spp.), tarweeds *(Centromadia* spp., *Deinandra* spp.), and filarees (*Erodium* spp.) (Holland 1986). In San Diego County, annual grasslands often occur where the native habitat has been disturbed frequently or intensively by grazing, fire, agriculture, or other activities.

Non-native grassland need not exhibit moderate to high value for sensitive wildlife, including potential raptor foraging, if it has a non-native grassland component, evidence of rodent activity or raptor foraging, or provides potential habitat for small mammals or reptiles. Where there is a mixture of species from different vegetation communities, the indicator species with the greatest vegetation coverage is used to identify the vegetation type (County 2002).

Non-native grassland occurs along the eastern edge of the site and throughout most of the western part of the site, including most of the area of abandoned grove. This vegetation type has a dense (greater than 80% cover) herb layer containing non-native grasses, such as wild oat (*Avena fatua*) and soft brome *(Bromus hordeaceus)*, non-native herbs, such as Italian thistle (*Carduus pycnocephala*), black mustard (*Brassica nigra*), red-stemmed filaree (*Erodium cicutarium*) and fennel (*Foeniculum vulgare*), or dove weed (*Eremocarpus setigerus*), a native herb. Coast live oak, toyon, avocado, walnut, and citrus have a combined canopy cover of up to 20%, with native and non-native canopy cover being roughly equal. Single mature coast live oak, Brazilian pepper (*Schinus terribinthifolius*), or pine trees are also included in this classification, as is a cluster of coast live oaks that form a single canopy. Because of the disturbed nature of much of this vegetation community, habitat value is low, with the primary value including roost and perch sites (in dead trees) for raptors foraging on small mammals in the grassland.

Non-native Vegetation (Holland Code 11000)

Non-native vegetation is a general category. Onsite this classification includes areas with a 50% or greater cover of non-native arboreal ornamental or agricultural plants: areas dominated by clusters of Mexican fan palms (*Washingtonia robusta*); groups of at least two pine (*Pinus* sp.) trees; areas where abandoned walnut (*Juglans* sp.) and avocado (*Persea* sp.) trees maintain a healthy canopy (at least 80% living); and an area with a closed canopy of young *Prunus* sp. trees (six to eight feet tall) on a northeast-facing slope above the riparian forest. Habitat value is limited to bird nesting and perching sites.

Southern Coast Live Oak Riparian Forest (Holland Code 61310)

Southern coast live oak riparian forest (oak riparian forest) is an open to locally dense evergreen riparian woodland dominated by coast live oak. It develops on fine-grained rich alluvium on the outer floodplains along larger streams. This community often contains relatively more herbs and fewer shrubs than other riparian communities. Understory species commonly observed within oak riparian forest include western poison oak (*Toxicodendron diversilobum*) and toyon (Holland 1986).

Oak riparian forest occurs in the eastern half of the site adjacent to the two streams that traverse the site from north to south. In addition to the dominant coast live oaks, two Engelmann oaks (*Quercus engelmannii*) are present on the edges of this community. These mature oak trees are 30 to 40 feet tall, over an understory that includes western poison oak, scratchgrass (*Muhlenbergia asperifolia*), common poison hemlock (*Conium maculatum*), English ivy (*Hedera helix*), greater periwinkle (*Vinca major*), and Italian thistle (see *Appendix E, Photographs 5* and *6*). Toyon is the dominant understory shrub. Oak riparian forest is mapped to the limits of the riparian coast live oak's canopies and thus includes some upland areas with an understory of non-native grasses and other xeric species along the margins. Habitat value is moderate, with good potential for nesting birds, reptiles, and amphibians limited by non-native species in the understory and lack of connectivity with other riparian habitat.

Valley Needlegrass Grassland (Holland Code 42110)

Valley needlegrass grassland (valley grassland) is dominated by purple needlegrass (*Nassella pulchra*), a tussock-forming perennial grass that reaches about two feet in height. It usually occurs on fine-textured soils that are moist or wet in winter, becoming very dry in summer. On moister sites it often occurs among oak woodlands. Native annuals and grasses, and non-native grasses, such as bromes and wild oats, occur between the bunchgrasses, often forming most of the vegetative cover (Holland 1986). Valley grassland is mapped when native grass cover is 20% or greater (County 2002).

Valley grassland occurs on the eastern edge of the site in the upland area and between the riparian oak vegetation. Except at the fringes of the vegetation, purple needlegrass consistently occupied over 50% of the vegetative cover. Canchalagua (*Centaurium venustum*) was the only native wildflower observed in the valley needlegrass grassland. Areas with abundant purple needlegrass beneath the oak riparian forest canopy were mapped as the latter. Habitat value is moderate, due to its relatively high quality (native plant cover) but limited area.

Disturbed Habitat (Holland Code11300)

This is a barren area of compacted dirt off Range Road in the northeastern part of the site.

Disturbed habitat refers to land that has been permanently altered by previous human activity that has eliminated all future biological value of the land for most species. The native or naturalized vegetation is no longer present and the land lacks habitat value for sensitive wildlife, including potential raptor foraging. This area has no habitat value.

Urban/ Developed (Holland Code 12000)

Urban/ developed is a category that includes buildings, roads and graded surfaces that lack vegetation entirely. Developed areas onsite consist of a vacant building and paved roads around the perimeter of the property.

TABLE 1 VEGETATION COMMUNITIES AND LAND COVER TYPES

VEGETATION COMMUNITY/LAND COVER TYPE	ACREAGE
Disturbed Coast Live Oak Woodland	3.2
Non-native Grassland	17.6
Non-native Vegetation	2.1
Southern Coast Live Oak Riparian Forest (RPO & ACOE)	2.5
Valley Needlegrass Grassland	0.04
Disturbed	0.7
Urban/Developed	1.1

Acreages rounded to tenths, total does not equal total acreage of 27.21 acres due to rounding

VEGETATION COMMUNITY/LAND COVER TYPE	ACREAGE
Disturbed Coast Live Oak Woodland	3.2
Non-native Grassland	17.6
Non-native Vegetation	2.1
Southern Coast Live Oak Riparian Forest (RPO & ACOE)	2.5
Valley Needlegrass Grassland	0.1
Disturbed	0.7
Urban/Developed	1.0
Total	27.2

Totals may not sum due to rounding

II. ASSESSMENT HISTORY

A. Plant Background

Surveys for delicate clarkia (*Clarkia delicata*) and mesa horkelia (*Horkelia cuneata* ssp. *puberula*) found none of those species on site. Both plants are listed as CNPS 1B.1 species, which is defined as Rare or Endangered in California and Elsewhere; Seriously endangered in California.

Delicate clarkia: Delicate clarkia (*Clarkia delicata*) is a CNPS 1B.1 plant. The periphery of oak woodlands and cismontane Chaparral haunts are the favored habitats for this annual. Preferred locales are partially shaded by tree canopy or large shrubs, and typically were vernally mesic situations with substantial peripheral annual and herbaceous spring growth. It can be identified during a narrow flowering period from approximately April 23 to June 13.

Mesa horkelia: Mesa horkelia (*Horkelia cuneata ssp. Puberula*) is a CNPS 1B.1 plant. The primary habitat this species is associated with is vernal pools and depressions and ditches in areas that once supported vernal pools below 2000 feet. There is no appropriate habitat for this species on the project site.

B. Soils

The site is mapped as containing sandy loam soils in the Vista, Ramona, Placentia, and Fallbrook series, and it contains Steep gullied land (Bowman 1973). These soils are well-drained or moderately well-drained, have neutral pH, and are not recognized as providing a substrate for particular rare plant species.

Steep gullied land, found in a band through the center of the site (in approximately the same area as the streams onsite) is actively eroding into old alluvial or decomposed rock parent material (Bowman 1973).

Ramona sandy loam, 5 to 9 percent slopes occurs along either side of the steep gullied land. It is a well-drained soil with sandy loam topsoil 11 to 21 inches deep over sandy clay loam subsoil from 30 to 56 inches thick. Ramona soils are derived from granitic alluvium on alluvial fans and terraces. Native vegetation typically found on these soils includes chamise chaparral and scattered oaks and annual forbs (Bowman 1973).

Vista coarse sandy loam, 15 to 30 percent slopes, found in most of the western one-third of the site, occur on sloping uplands and are derived from granodiorite or quartz diorite. This moderately well drained soil has grayish brown to dark-brown topsoil 14 to 23 inches deep

over the sandy loam subsoil that extends from 27 to 47 inches depth. Vista soils typically support chamise chaparral, coastal sage scrub, and annual grassland (Bowman 1973).

Placentia sandy loam, 2 to 9 percent slopes, eroded, occurs in the southeastern corner of the site. Placentia series soils are moderately well-drained soils that form on granitic alluvium on old alluvial fans. The topsoil extends from 9 to 20 inches deep, above a sandy clay to heavy clay subsoil. Placentia soils typically support oak savannah, chamise chaparral, and annual grassland (Bowman 1973).

Fallbrook sandy loam, 9 to 15 percent slopes, eroded occurs at the southern tip of the site. It is from 27 to 50 inches deep, with a sandy loam topsoil and loam to sandy clay loam subsoil. Fallbrook series soils are well-drained, deep sandy loams formed in place from weathering of granodiorite. This soil typically supports grasslands, oak, broadleaved, or chamise chaparral vegetation (Bowman 1973). The soils found are consistent with the soils mapped for the area.

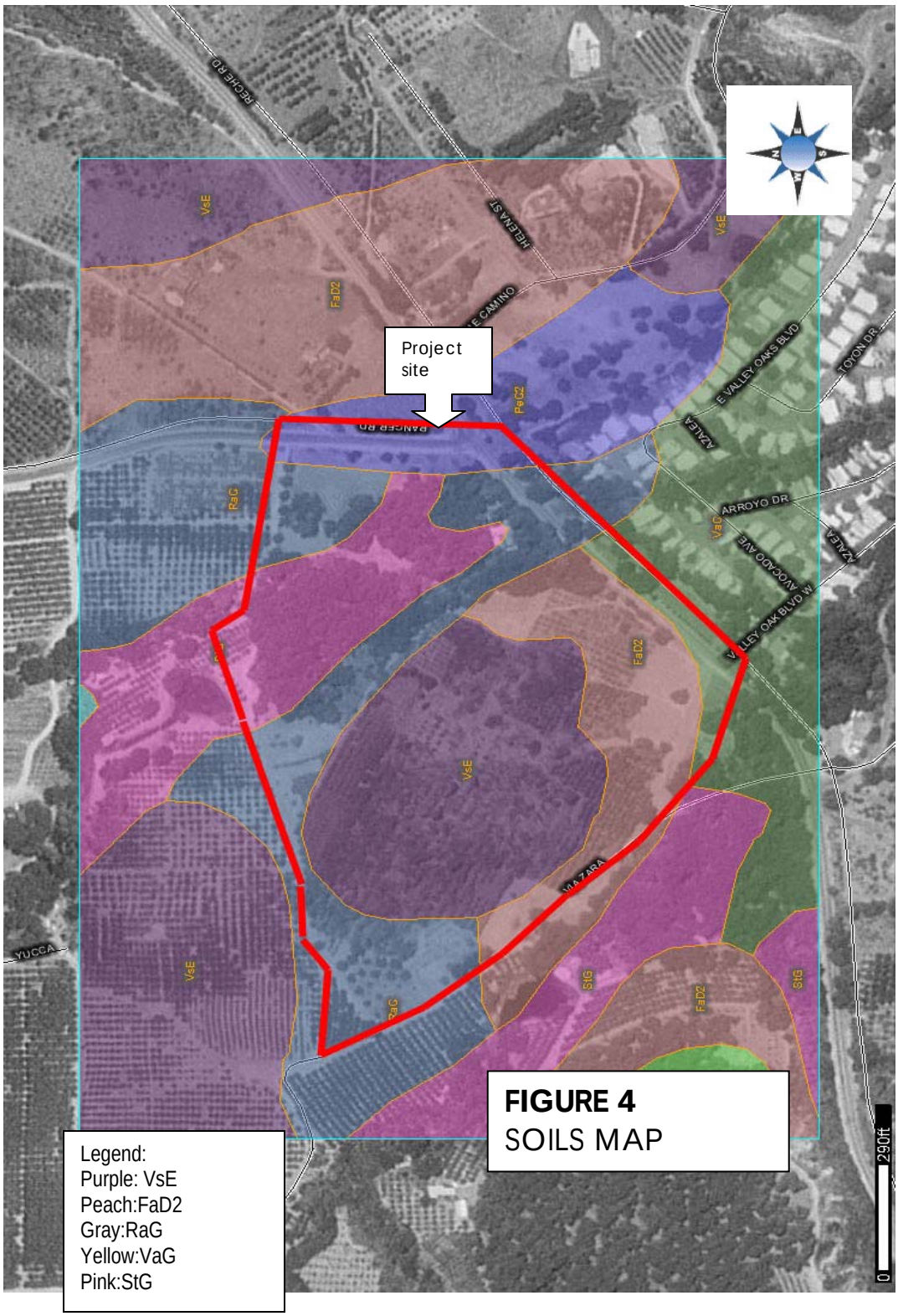


FIGURE 4
SOILS MAP

C. Precipitation Data

Precipitation Data was gathered to determine if normal or abnormal rainfall occurred in 2006. Precipitation data was determined to be near –normal for 2006. Precipitation data for January 2007 was 0-40% of normal. Precipitation data indicates if the year prior to the surveys received normal rainfall for the year. If precipitation was abnormal surveys conducted for plants may not be valid. Maps of precipitation data are shown below.

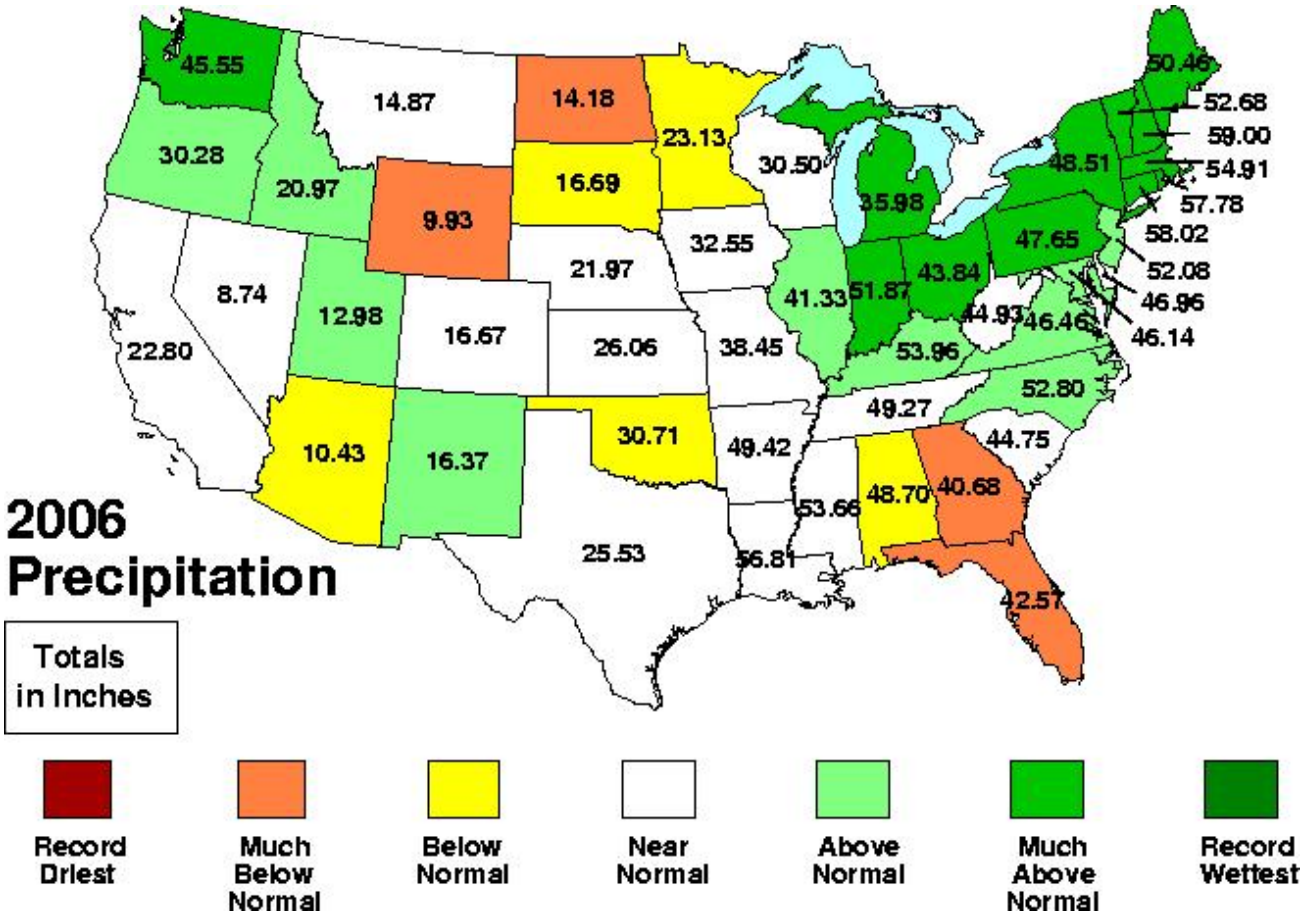


FIGURE 5
2006 PRECIPITATION

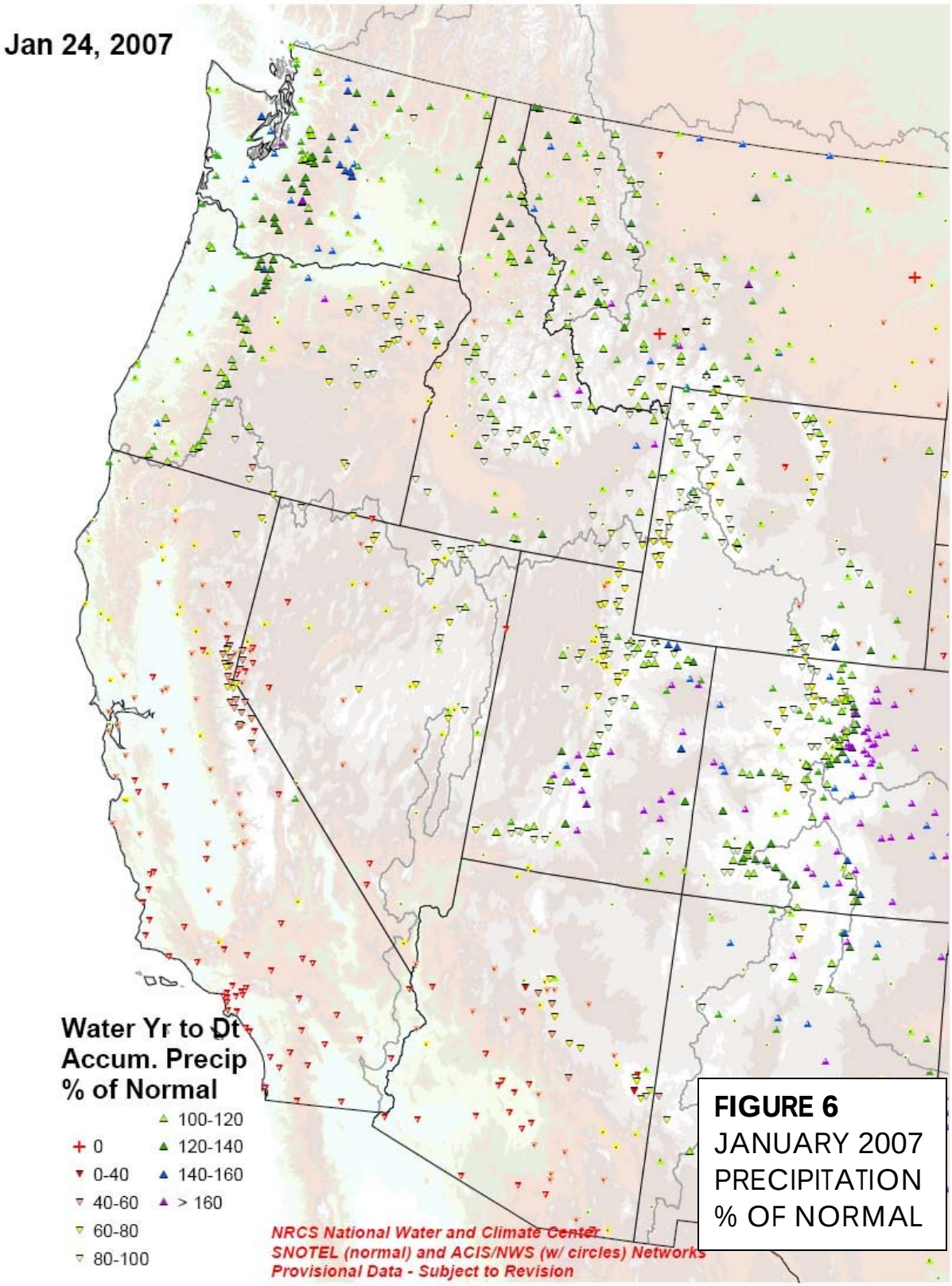
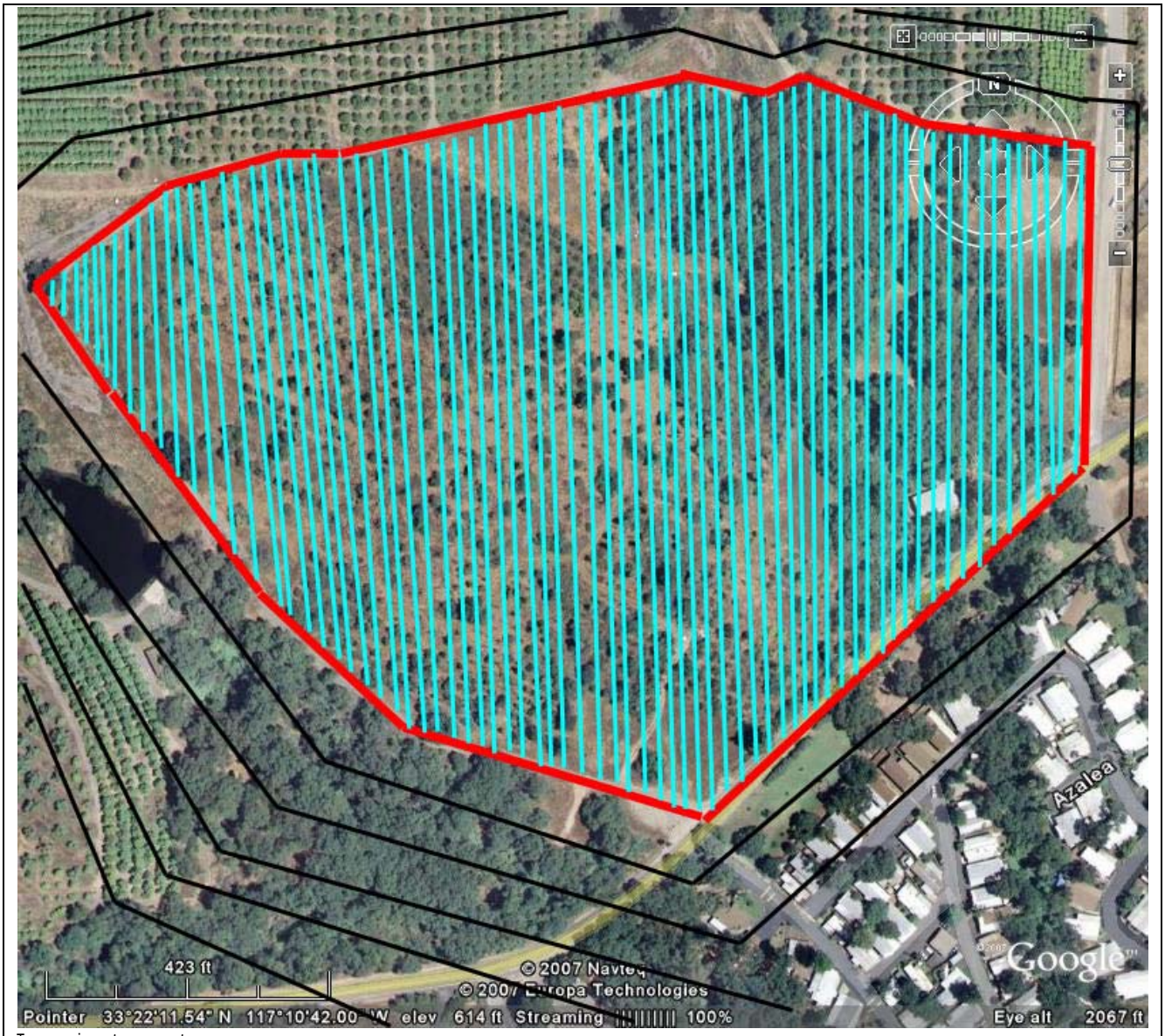


FIGURE 6
JANUARY 2007
PRECIPITATION
% OF NORMAL

D. Habitat Assessment

Gonzales Environmental Consulting LLC (GEC) conducted a habitat assessment for the species listed above. The site, plus a 150, 300 and 600-foot buffer zone around the perimeter, was surveyed on May 28, 2007.



Turquoise=transects
Red=project boundary
Black=buffer transects

FIGURE 7
TRANSECTS

Please note that this is an approximate locality map, and should not be used for calculations

The habitat assessment followed the recommendations of the California Native Plant Society (Nelson 1994). The habitat assessment was performed to determine the Site's suitability to support the species listed above. Several key indicators were used in determining the Site's potential to support the species. Key indicators included the presence of suitable habitat, moisture and soil conditions.

The Site exhibited three key indicators of suitable habitat for the two species. The following indicators observed on-site were:

- Appropriate habitat
- Appropriate moisture conditions
- Appropriate soil conditions

The results of the habitat assessment concluded that the Site did contain suitable habitat.

III. SURVEY METHODOLOGY

Pertinent literature was reviewed to identify local occurrences and habitat requirements of the two species. Literature reviewed included compendia provided by resource agencies, California Native Plant Society's *Inventory of Rare and Endangered Vascular Plants of California* (Skinner and Pavlik, 1994).

Teresa Gonzales, Senior Biologist for Gonzales Environmental Consulting LLC, performed botanical surveys of the property. The site visit was not conducted during inclement weather. The site was surveyed along linear transects that were 3' – wide and 3' apart which spanned the length of the site from north to south. These transects were completed until 100% of the project site was assessed. Additionally, "zone of influence" transects were assessed around the perimeter of the site. These transects were situated at 150', 300', and 600'from the site perimeter. The site was examined closely, paying close attention to areas that may support the species identified above, stopping periodically for observations and notations.

This methodology is consistent with recommendations by the California Native Plant Society (Nelson 1994) because it provides more than a "reasonable coverage" of all habitat types and was "floristic in nature." All plant species seen were recorded in field notes.

Immediately after the habitat assessment, focused surveys were conducted on the Site. The focused surveys were conducted by Teresa Gonzales on May 28, 2007.

TABLE 4: SURVEY INFORMATION

Date	Air Temp	Wind Speed	Cloud Cover	Precipitation	Time of Surveys
May 28	73 F	1-4 mph	clear	none	12 PM-6 PM

IV. RESULTS

Results of the surveys did not indicate that any of the species detailed above occur on the Site, nor were any of narrow endemic plants observed.

Historic research of the project site and area indicate that none of the sensitive plants have been found on the proposed project site or in the immediate area.

Like other rain dependent plants, these species are susceptible to damage from ground disturbance activities *(e.g. mowing*). As the survey year (2007) was a dry year, plants that could have been present would not be as likely to be present.

Due to repeated anthropogenic disturbances the project site has become unsuitable to the sensitive plants described above. Some anthropogenic disturbances i.e. mowing, are found to cause minor to serious disturbance to habitats

V. SUMMARY

GEC conducted Habitat Assessment and Surveys as outlined above. Plant locations were not recorded in this area prior to these surveys.

Due to repeated anthropogenic disturbances the project site has become unsuitable to the sensitive plants described above. Unfortunately the proposed project site has been deeply tilled over a series of years which has removed the seed base and permanently disturbed the soils.

VI. POTENTIAL IMPACTS & AVOIDANCE RECOMMENDATIONS

The purpose of the botanical survey was to determine the presence or absence of delicate clarkia and mesa horkelia and to evaluate the effects of the proposed project conceptual design on these resources. This survey followed survey methodology recommended by the California Native Plant Society (Nelson 1994). In particular, the

survey was "floristic in nature" and provided a "reasonable coverage" of all habitat types on the site. The field survey consisted of a series of transects to assure sufficient coverage of habitat types. All species seen were identified in the field or collected for identification or confirmation. This information is required to determine whether and in what ways site development could result in adverse effects upon botanical resources.

The survey determined the proposed project will not impact any Sensitive species, including the narrow endemics.

No species identified as occurring on the project site are listed as threatened or endangered, GEC has concluded that the proposed action will have no potential to impact delicate clarkia and mesa horkelia.

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VII. APPENDICES

Climate Data